

ABSTRACT

A chemical-mechanical polishing apparatus is provided with a downstream device for conditioning a web-shaped polishing pad. The device may be used to condition a glazed portion of the pad, and then the conditioned pad portion may be used again for polishing. The conditioning device is preferably arranged to apply different conditioning treatments to different portions of the glazed pad. The conditioning device may have roller segments that rotate at different speeds. Alternatively, the device may have non-cylindrical rollers that provide different rotational speeds at the pad surface, or the device may apply different pressures at different portions of the pad. The device may be arranged to provide uniform conditioning across the width of the pad. The invention is applicable to methods of planarizing semiconductor wafers. The invention may be used to condition circular pads in addition to web-shaped pads. The conditioning device may be adjusted or controlled in response to surface characteristics data obtained by measuring polished wafers.